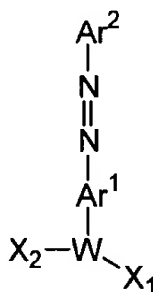


This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-26. (Canceled)

27. (Currently Amended): A ~~quencher-phosphoramidite reagent~~ compound having the formula:



wherein

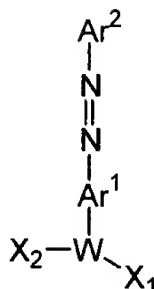
Ar^1 and Ar^2 are each independently a substituted or unsubstituted aryl group;

X_1 is selected from the group consisting of OH, O-dimethoxytrityl, O-methoxytrityl, O-trityl and an oxygen atom having an acid labile blocking group;

X_2 is a ~~moiety reactive towards nucleophiles~~ phosphoramidite; and

W is a linking group having from 3 to 100 backbone atoms selected from C, N, O, S, Si and P, said linking group being cyclic, acyclic, aromatic or a combination thereof.

28. (Currently Amended): A ~~quencher-phosphoramidite reagent~~ compound having the formula:



CI
COO₄ wherein

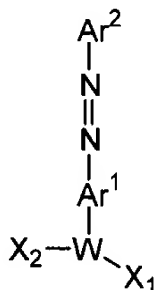
Ar¹ and Ar² are each independently a substituted or unsubstituted aryl group;

X₁ is selected from the group consisting of H, (C₁-C₁₂)alkyl, aryl, heteroaryl, and protected or unprotected functional group;

X₂ is selected from the group consisting of a phosphorous coupling moiety, a pentafluorophenoxy moiety and a succinimidyl moiety; and

W is a linking group having from 3 to 100 backbone atoms selected from C, N, O, S, Si and P, said linking group being cyclic, acyclic, aromatic or a combination thereof.

29. (Currently Amended): A ~~quencher-phosphoramidite reagent~~ compound having the formula:



wherein

Ar^1 and Ar^2 are each independently a substituted or unsubstituted aryl group;

X_1 is selected from the group consisting of H, $(\text{C}_1\text{-C}_{12})$ alkyl, aryl, heteroaryl, and protected or unprotected functional group;

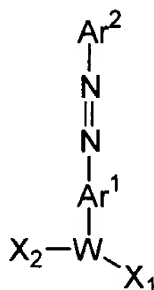
X_2 is a phosphoramidite; and

W is a linking group having from 3 to 100 backbone atoms selected from C, N, O, S, Si and P, said linking group being cyclic, acyclic, aromatic or a combination thereof.

30. (Canceled)

31. (Canceled)

32. (Currently Amended): A ~~quencher-phosphoramidite reagent~~ compound having the formula:



wherein

Ar^1 and Ar^2 are each independently a substituted or unsubstituted aryl group;

X_1 is selected from the group consisting of H, $(\text{C}_1\text{-C}_{12})$ alkyl, aryl, heteroaryl, and protected or unprotected functional group;

X_2 is a moiety reactive towards nucleophiles;

W is a linking group having from 3 to 100 backbone atoms selected from C, N, O, S, Si and P, said linking group being cyclic, acyclic, aromatic or a combination thereof; and

wherein one of Ar¹ and Ar² is directly or indirectly substituted with a substituted aryl group (Ar³), where Ar³ extends the resonance ability of the Ar¹-N=N-Ar² aromatic system and thereby increases the wavelength absorbance maximum of the compound.

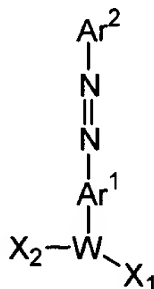
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33. (Previously Added) A compound of claim 32 wherein Ar¹ is directly substituted with Ar³.

34. (Previously Added) A compound of claim 32 wherein Ar¹ is indirectly substituted with Ar³.

35. (Previously Added) A compound of claim 32 wherein Ar² is directly substituted with Ar³.

36. (Previously Added) A compound of claim 32 wherein Ar² is indirectly substituted with Ar³.

37. (Currently Amended): A quencher-phosphoramidite reagent compound having the formula:



wherein

Ar^1 and Ar^2 are each independently a substituted or unsubstituted aryl group;

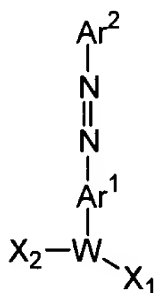
X_1 is selected from the group consisting of H, (C₁-C₁₂)alkyl, aryl, heteroaryl, and protected or unprotected functional group;

X_2 is a phosphoramidite;

W is a linking group having from 3 to 100 backbone atoms selected from C, N, O, S, Si and P, said linking group being cyclic, acyclic, aromatic or a combination thereof; and

CI
cont. wherein Ar^1 or Ar^2 is indirectly substituted with Ar^3 through a group selected from $-(C\equiv C)_n-$ and $-(CR'=CR')_n-$ where n is 0 to 5 and R' is independently selected from hydrogen, (C₁-C₈)alkyl and heteroalkyl, unsubstituted aryl and heteroaryl, (unsubstituted aryl)-(C₁-C₄)alkyl, and (unsubstituted aryl)oxy-(C₁-C₄)alkyl.

38. (Currently Amended): A quencher-phosphoramidite reagent compound having the formula:



wherein

Ar^1 and Ar^2 are each independently a substituted or unsubstituted aryl group;

X_1 is selected from the group consisting of H, (C₁-C₁₂)alkyl, aryl, heteroaryl, and protected or unprotected functional group;

X_2 is a phosphoramidite;

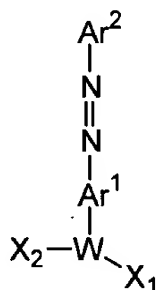
W is a linking group having from 3 to 100 backbone atoms selected from C, N, O, S, Si and P, said linking group being cyclic, acyclic, aromatic or a combination thereof; and

Ar^1 or Ar^2 is indirectly substituted with Ar^3 through a double bond selected from carbon-carbon and nitrogen-nitrogen double bonds.

39. (Canceled)

40. (Canceled)

41. (Currently Amended): A quencher-phosphoramidite reagent compound having the formula:



wherein

Ar^1 and Ar^2 are each independently a substituted or unsubstituted aryl group;

X_1 is selected from the group consisting of H, (C_1-C_{12}) alkyl, aryl, heteroaryl, and protected or unprotected functional group;

X_2 is a phosphoramidite;

W is a linking group having from 3 to 100 backbone atoms selected from C, N, O, S, Si and P, said linking group being cyclic, acyclic, aromatic or a combination thereof;

wherein one of Ar¹ and Ar² is directly or indirectly substituted with a substituted aryl group (Ar³), where Ar³ extends the resonance ability of the Ar¹-N=N-Ar² aromatic system and thereby increases the wavelength absorbance maximum of the compound; and

at least one of Ar¹, Ar² and Ar³ is substituted with -halogen, -OR', -OC(O)R', -NR'R'', -SR', -R', -CN, -NO₂, -CO₂R', -CONR'R'', -C(O)R', -OC(O)NR'R'', -NR''C(O)R', -NR''C(O)₂R', -NR'-C(O)NR''R''', -NH-C(NH₂)=NH, -NR'C(NH₂)=NH, -NH-C(NH₂)=NR', -S(O)R', -S(O)₂R', -S(O)₂NR'R'', -N₃, -CH(Ph)₂, perfluoro(C₁-C₄)alkoxy, and perfluoro(C₁-C₄)alkyl, in a number ranging from zero to the total number of open valences on the aromatic ring system; and where R', R'' and R''' are independently selected from hydrogen, (C₁-C₈)alkyl and heteroalkyl, unsubstituted aryl and heteroaryl, (unsubstituted aryl)-(C₁-C₄)alkyl, and (unsubstituted aryl)oxy-(C₁-C₄)alkyl.

42. (New) A compound of claim 27 wherein W is acyclic.
43. (New) A compound of claim 27 wherein W comprises a cyclic group.
44. (New) A compound of claim 28 wherein W is acyclic.
45. (New) A compound of claim 28 wherein W comprises a cyclic group.
46. (New) A compound of claim 29 wherein W is acyclic.
47. (New) A compound of claim 29 wherein W comprises a cyclic group.

48. (New) A compound of claim 32 wherein W is acyclic.
49. (New) A compound of claim 32 wherein W comprises a cyclic group.
50. (New) A compound of claim 33 wherein W is acyclic.
51. (New) A compound of claim 33 wherein W comprises a cyclic group.
- CI
COT
52. (New) A compound of claim 34 wherein W is acyclic.
53. (New) A compound of claim 34 wherein W comprises a cyclic group.
54. (New) A compound of claim 35 wherein W is acyclic.
55. (New) A compound of claim 35 wherein W comprises a cyclic group.
56. (New) A compound of claim 36 wherein W is acyclic.
57. (New) A compound of claim 36 wherein W comprises a cyclic group.
58. (New) A compound of claim 37 wherein W is acyclic.

59. (New) A compound of claim 37 wherein W comprises a cyclic group.

60. (New) A compound of claim 38 wherein W is acyclic.

C1
6054.
61. (New) A compound of claim 38 wherein W comprises a cyclic group.

62. (New) A compound of claim 41 wherein W is acyclic.

63. (New) A compound of claim 41 wherein W comprises a cyclic group.

64. (New) A compound of claims 28, 32-36 or 48-57 wherein X₂ is a phosphoramidite.
